



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/786,046

02/26/2004

Shinichi Takeshima

118849

5174

25944 7590 02/04/2010

OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

WARTALOWICZ, PAUL A

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

02/04/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com

jarmstrong@oliff.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/786,046	<b>Applicant(s)</b> TAKESHIMA, SHINICHI	
	<b>Examiner</b> PAUL A. WARTALOWICZ	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-8 and 10-14 is/are rejected.
- 7) ☒ Claim(s) 2 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

Applicant's arguments filed 10/13/09 have been fully considered but they are not persuasive.

Applicant argues that Sherif teaches away from the presence of mixed inorganic metal ions in the aqueous phase because of the recitation of "Due to the differences...differential settling may occur prior to precipitation."

However, it appears that this recitation only refers to reaction mixtures that have a single element in the aqueous solution with an amine precipitating base, and not a double salt mixture wherein an element is contained within the aqueous solution and an alkoxide in an organic solvent. Therefore, it appears that Sherif does not teach away the present invention.

Applicant argues that Chittofrati teaches that the reaction occurs in the aqueous phase and not at the interface between the aqueous and organic phases.

However, it appears that the claim recites "in which a hydroxide of said first element **is produced by** a hydrolysis reaction...at the interface..." This appears to be product by process language. It appears that the instantly claimed product by process is the same as that which is claimed (metal hydroxide). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*. 173 USPQ 685 and *In re Fessman*, 180 USPQ 324.

Applicant argues that Sato is only relied upon for its teaching of adding an alkali and thus does not cure the deficiencies of Sherif, Nawa, and Chittofrati.

However, Sato is only relied upon to teach an alkali is added to a system including a metal hydroxide for the purpose of stabilizing the aggregates and producing particles having a size of 100 nm (col. 1, 5). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that Uenishi is only relied upon for its teaching of adding an alkali and thus does not cure the deficiencies of Sherif, Nawa, and Chittofrati.

However, Uenishi is only relied upon to teach a process for purifying exhaust (paragraph 0004, lines 1-5) wherein a mixed oxide comprising zirconium and cerium are used as catalysts (paragraph 0008, lines 1-5). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Additionally, the remarks of Office Action mailed 5/13/09 are herein incorporated.

### ***Claim Objections***

Claim 5 is objected to because of the following informalities: it appears that after the recitation of "according to claim 2," --wherein-- or --further comprising-- should be included. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4, 6, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherif (U.S. 5023071) in view of Chittofrati et al. (U.S. 5670088) and Sato (US 4987012).

Sherif teaches a process for the formation of metal oxides from corresponding a zirconium alkoxide by a hydrolysis reaction (col. 1, lines 9-11) wherein a surfactant is added to a solution comprising metal alkoxide that forms an emulsion (Throughout

Art Unit: 1793

document, particularly col. 2, lines 15-20). Sherif also teaches two heating steps, the first heating step at a temperature of 425°C, the second heating step at a temperature of 800°C (col. 2, this appears to meet the limitation of firing in claims 1 and 6).

Sherif fails to teach wherein the aqueous phase has a cerium salt therein and that the emulsion is a microemulsion.

Chittofrati et al. teach a method of making mixed metal oxides (col. 1) wherein a microemulsion is formed by contacting an organic solvent with an organic salt disposed therein with an aqueous solvent with an aqueous salt therein in the presence of a surfactant (col. 3-4) for purpose of providing mixed metal oxides having a size of lower than 10 nm (col. 3).

Therefore, it would have been obvious to one of ordinary skill in the art to provide a microemulsion is formed by contacting an organic solvent with an organic salt disposed therein with an aqueous solvent with an aqueous salt therein in the presence of a surfactant (col. 3-4) in Sherif in order to provide a mixed metal oxides having a size of lower than 10 nm (col. 3) as taught by Chittofratti.

Regarding the limitation of adding an alkali to adjust pH for colloid adjustment, Sato teaches a method of preparing mono-dispersed particles of metal oxides (col. 1) wherein an alkali is added to a system including a metal hydroxide for the purpose of stabilizing the aggregates and producing particles having a size of 100 nm (col. 1, 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide an alkali added to a system including a

Art Unit: 1793

metal hydroxide in Sherif in order to provide stabilization of the hydroxide aggregates and to produce particles having a size of 100 nm (col. 1, 5) as taught by Sato.

As to the limitation wherein the size of the aqueous phase of the water-in-oil type microemulsion is in the range of 2-40 nm, it appears that the prior art teaches a substantially similar process as the claimed invention such that the properties of the microemulsion formed in the prior art are substantially similar those formed by the claimed invention, including size.

As to the limitations of the compound oxide particles having a composition that is uniform at the atomic level, the combined prior art teach a substantially similar process such that the properties of the product of said process are substantially similar to those of the product of the present invention.

Claims 7, 8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherif (U.S. 5023071) in view of Chittofrati et al. (U.S. 5670088) and Sato (US 4987012) and Uenishi et al. (U.S. 20020061816).

Sherif et al. teach a process for making a zirconia based ceramic material as described above in claim 1. The combined teachings of Sherif, Chitofratti, and Nawa meet the claimed limitation wherein a process for production of an exhaust gas purification catalyst carrier by a production process such that characteristics of the product are inherently taught because the limitations of the process of making are disclosed.

Regarding the process for production of an exhaust gas purification catalyst carrier by a production process, Uenishi et al., however, teach a process for purifying exhaust (paragraph 0004, lines 1-5) wherein a mixed oxide comprising zirconium and cerium are used as catalysts (paragraph 0008, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein a mixed oxide comprising zirconium and cerium are used as catalysts (paragraph 0008, lines 1-5) as taught by Uenishi et al.

#### ***Allowable Subject Matter***

Claims 2 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest that the aqueous phase further contains a third or additional elements as ions, said product contains a third or additional elements, and the obtained compound oxide is a compound oxide of the first, second, and third or additional elements.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.



Art Unit: 1793

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz  
January 30, 2010

/Stanley Silverman/  
Supervisory Patent Examiner, AU 1793